



UNITED STATES PATENT AND TRADEMARK OFFICE

ca
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,727	02/15/2002	David F. Gavin	101792-200	2648
27267	7590	07/12/2007		
WIGGIN AND DANA LLP ATTENTION: PATENT DOCKETING ONE CENTURY TOWER, P.O. BOX 1832 NEW HAVEN, CT 06508-1832			EXAMINER SHIBUYA, MARK LANCE	
			ART UNIT 1639	PAPER NUMBER
			MAIL DATE 07/12/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/077,727	Applicant(s) GAVIN ET AL.	
	Examiner Mark L. Shibuya, Ph.D.	Art Unit 1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4,6-11,35,36 and 40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,4,6-11,35,36 and 40 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 2, 4, 6-11, 35, 36, and 40 are pending and examined.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/09/2007 has been entered.

Election/Restrictions

3. The requirement for restriction/election, mailed 1/26/2004, and applicant's election, with traverse, of Group I and the species of copper oxide and sodium pyrithione, entered 5/26/2004, are maintained.

Priority

4. This application, 10/077,727, states that it is a divisional of pending application 09/120,664, filed 7/22/1998.

Claim Objections

5. Claim 2 is objected to because of the following informalities: The word "essentially" in line 5 appears to be misspelled. Appropriate correction is required.

Withdrawn Claim Objections/Rejections

6. The following claim objections/rejections are withdrawn:
7. Claim 37 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. (NEW MATTER REJECTION).

This rejection is withdrawn in view of applicant's amendments to the claims.

Claim Rejections - 35 USC § 102/103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
9. Applicant traverses the rejection of claims 2, 4, 6-10 and 40 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hosseini et al., US Pat. No. 5,540,860 (7/96) alone or if necessary further in view of the

Art Unit: 1639

specification (e.g. page 7, figures (e.g. fig. 2)) and examples (e.g. example 1) to demonstrate inherency (e.g. see *Ex parte Novitski*, 26 USPQ2d 1389 (B.P.A.I, 1993); MPEP 2131.01(d).

This rejection is maintained for the reasons of record, as set forth in the previous Office action. The rejection is copied below for the convenience of the reader.

The present invention is directed to:

A biocidal composition comprising composite particles (shell/core) wherein:

a. The core comprises:

-surface oxidized copper powder or

-a copper compound (cuprous oxide, copper hydroxide or a copper containing salt(s)) AND

b. The shell comprises "copper pyrithione" formed by reacting:

pyrithione acid or water soluble salt of pyrithione AND portion of copper or copper compound of core.

It is noteworthy that the present claim recites the metal pyrithione shell by its means of manufacture e.g. in product-by-process format (e.g. *metal pyrithione is formed by reacting a pyrithione acid/salt with the core metal/metal compound*).

Hosseini teaches a "biocidal composition" (e.g. see col. 1, especially lines 45-50) comprising "particles" (e.g. spheres) of "copper pyrithione" formed by aqueous mixing:

a. "a copper compound" (e.g. a "copper salt" such as copper chloride or copper sulfate) and

b. "a pyrithione salt"

(see col. 2, example 1).

The Hossein et al. method teaches the use of pyrithione salts between about 1 to about 40% (based on total composition weight), between 5 and 25% and 15 and 25% (e.g. see Hossein at col. 2, especially lines 54-60) which anticipates, or alternatively renders obvious the percentage amounts of copper pyrithione adduct shell of present claims 7-9, respectively since the reference amounts are within the scope of the claimed amounts. The Hossein teaching of "between about one and about 40% of the pyrithione salt" would anticipate or render obvious the corresponding copper/copper compound amount of "about 99% to about 60%" as presently claimed in claim 4; and additionally, the proportions of the Hossein components (e.g. see bottom of col.2) are within the scope of the wide ratio proportion (1:20 to 20:1) (see present claim 40) of core/shell ingredients.

Hosseini teach the optional surfactant coating of its particles (e.g. see col. 2, lines 10-17) anticipating present claim 10.

To the extent that the Hossein reference biocidal copper pyrithione (e.g. spherical) particles differ by failing to explicitly teach the physical nature of the resulting particle e.g. a copper pyrithione "shell" and copper/copper compound "core" such a physical arrangement MUST be inherently present in the Hossein particles since:

a. The Hossein particles are composed of the same ingredients and in the same amounts as the presently claimed particles;

b. The Hossein particles are formulated in the same manner (compare patent example 1 and specification example 1) are shaped and sized (e.g. spherical and about 2-15 micron diameter) as particles disclosed in the present specification (e.g. see columns 2 and 7 of the reference and compare to specification page 7 and specification figure 2) ; and

c. In light of the specification disclosure which teaches that a composite particle containing a metal (e.g. copper) "core" coated with a copper pyrithione "shell" results upon aqueous mixing a copper compound and a pyrithione salt (e.g. sodium pyrithione as found in both the reference and specification example) followed by the precipitation protocol. E.g. see present specification page

Art Unit: 1639

IN this regard, it is noted that where the claimed and prior art products are identical or substantially identical in structure or composition (as in the present case) AND/OR is produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the appellant and the prior art are the same, the appellant has the burden of showing that they are not" *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). For a chemical composition and its properties are inseparable. Therefore, since the prior art teaches the identical or substantially identical chemical structure, the properties appellant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990); and MPEP 2112.01. The PTO lacks the facilities for making comparisons between prior art and claimed compositions.

Discussion

Arguments directed to the above 102/103 rejection over the Hosseini reference were considered but deemed nonpersuasive for the following reasons. Initially, it is noted that the above rejection was modified in response to applicant's amendment.

Applicant argues that the Hosseini '860 patent reference fails to anticipate the presently claimed invention since it fails to teach or suggest biocidal compositions comprising composite particles comprising a shell and core and fails to disclose or suggest a composite particle shell containing any range or amounts of copper pyrithione, much less the instantly claimed range.

This is not persuasive for the reasons provided in the rejection. To the extent that the Hossein reference biocidal copper pyrithione (e.g. spherical) particles differ by failing to explicitly teach the physical nature of the resulting particle e.g. a copper pyrithione "shell" and copper/copper compound "core" such a physical arrangement MUST be inherently present in the Hossein particles since:

- a. The Hossein particles are composed of the same ingredients and in the same amounts as the presently claimed particles;
- b. The Hossein particles are formulated in the same manner (compare patent example 1 and specification example 1) are shaped and sized (e.g. spherical and about 2-15 micron diameter) as particles disclosed in the present specification (e.g. see columns 2 and 7 of the reference and compare to specification page 7 and specification figure 2); and
- c. In light of the specification disclosure which teaches that a composite particle containing a metal (e.g. copper) "core" coated with a copper pyrithione "shell" results upon aqueous mixing a copper compound and a pyrithione salt (e.g. sodium pyrithione as found in both the reference and specification example) followed by the precipitation protocol. E.g. see present specification page

IN this regard, it is noted that where the claimed and prior art products are identical or substantially identical in structure or composition (as in the present case) AND/OR is produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the appellant and the prior art are the same, the appellant has the burden of showing that they are not" *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Additionally, the Hossein et al. method teaches the use of pyrithione salts between about 1 to about 40% (based on total composition weight), between 5 and 25% and 15 and 25% (e.g. see Hossein at col. 2, especially lines 54-60) which anticipates, or alternatively renders obvious the percentage amounts of copper pyrithione adduct shell of present claims 7-9, respectively since the reference amounts are within the scope of the claimed amounts. The Hossein teaching of "between about one and about 40% of the pyrithione salt" would anticipate or render obvious the corresponding copper/copper compound amount of "about 99% to about 60%" as presently claimed in claim 4; and additionally, the proportions of the Hossein components (e.g. see bottom of col.2) are within the scope of the wide ratio proportion (1:20 to 20:1) (see present claim 40) of core/shell ingredients.

Accordingly, the above anticipation rejection is hereby maintained.

Applicant argues that the reference of Hosseini et al. does not disclose how to make or produce a biocidal composition comprising composite particles having a shell and a core. Applicant argues that

Art Unit: 1639

Hosseini et al., at col. 2, lines 30-40, teach away from the claimed invention by alleging that Hosseini et al. describes reducing or eliminating the bonding of copper pyrithione molecules to one another.

Response to Arguments, 3/8/2006

Applicant's arguments, entered 11/14/2005, have been fully considered but they are not persuasive.

The examiner respectfully submits that the prior art reference of Hosseini et al. discloses biocidal compositions comprising composite particles, as explained in the previous Office action:

Applicant argues that the Hosseini '860 patent reference fails to anticipate the presently claimed invention since it fails to teach or suggest biocidal compositions comprising composite particles comprising a shell and core and fails to disclose or suggest a composite particle shell containing any range or amounts of copper pyrithione, much less the instantly claimed range.

This is not persuasive for the reasons provided in the rejection. To the extent that the Hossein reference biocidal copper pyrithione (e.g. spherical) particles differ by failing to explicitly teach the physical nature of the resulting particle e.g. a copper pyrithione "shell" and copper/copper compound "core" such a physical arrangement MUST be inherently present in the Hossein particles since:

- a. The Hossein particles are composed of the same ingredients and in the same amounts as the presently claimed particles;
- b. The Hossein particles are formulated in the same manner (compare patent example 1 and specification example 1) are shaped and sized (e.g. spherical and about 2-15 micron diameter) as particles disclosed in the present specification (e.g. see columns 2 and 7 of the reference and compare to specification page 7 and specification figure 2); and
- c. In light of the specification disclosure which teaches that a composite particle containing a metal (e.g. copper) "core" coated with a copper pyrithione "shell" results upon aqueous mixing a copper compound and a pyrithione salt (e.g. sodium pyrithione as found in both the reference and specification example) followed by the precipitation protocol. E.g. see present specification page

IN this regard, it is noted that where the claimed and prior art products are identical or substantially identical in structure or composition (as in the present case) AND/OR is produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the appellant and the prior art are the same, the appellant has the burden of showing that they are not" *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Additionally, the Hossein et al. method teaches the use of pyrithione salts between about 1 to about 40% (based on total composition weight), between 5 and 25% and 15 and 25% (e.g. see Hossein at col. 2, especially lines 54-60) which anticipates, or alternatively renders obvious the percentage amounts of copper pyrithione adduct shell of present claims 7-9, respectively since the reference amounts are within the scope of the claimed amounts. The Hossein teaching of "between about one and about 40% of the pyrithione salt" would anticipate or render obvious the corresponding copper/copper compound amount of "about 99% to about 60%" as presently claimed in claim 4; and additionally, the proportions of the Hossein components (e.g. see bottom of col.2) are within the scope of the wide ratio proportion (1:20 to 20:1) (see present claim 40) of core/shell ingredients.

Previous Office action, mailed 5/12/2005, at pp. 6-8.

Applicant's argument that the reference of Hosseini et al. teaches away from the claimed invention is not deemed persuasive because Hosseini et al., at col. 2, lines 6-16, teach particles, as in the instant claims. Therefore, the examiner respectfully submits that it is not clear that the reduction of

Art Unit: 1639

elimination of agglomeration of copper pyrithione molecules prevents the production of particles or that Hosseini et al. teaches away from particles, as that prior reference plainly discloses them. Applicant's arguments do not explain how prevention of agglomeration of copper pyrithione, prevents the production of particles or compositions thereof, but merely assert that Hosseini et al. therefore teaches away from the claimed invention. Applicant is respectfully reminded that the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness."). MPEP 2145.

Response to Arguments, 11/27/2006

Applicant argues that the reference of Hosseini et al. does not disclose how to make or produce a biocidal composition comprising composite particles having a shell and a core. Applicant argues that Hosseini et al., at col. 2, lines 30-40, teach away from the claimed invention by alleging that Hosseini et al. describes reducing or eliminating the bonding of copper pyrithione molecules to one another.

Applicant's arguments filed 9/8/2006 have been fully considered but they are not persuasive.

The examiner respectfully submits that the prior art reference of Hosseini et al. discloses biocidal compositions comprising composite particles. The Hosseini et al. reference discloses a composition in particle form, which comprises the same components (copper and pyrithione) which possesses the same presently claimed utility (i.e., biocidal). Thus, the particle complex of Hosseini et al., which possesses ingredients within the scope of the presently claimed invention, would inherently possess the same physical parameters (i.e., core and shell).

According to MPEP 2112.01, where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for basis for believing that the products of the applicant and the prior are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911, F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Therefore, because Hosseini et al., teach the identical or substantially identical chemic structure, the properties applicant discloses and/or claims are necessarily present.

Applicant's argument that the prior art references of Hosseini et al. and Gavin et al. teach away from the claimed invention is not deemed persuasive because Hosseini et al., at col. 2, lines 6-16, teach particles, as in the instant claims. Therefore, the examiner respectfully submits that it is not clear that the reduction of elimination of agglomeration of copper pyrithione molecules prevents the production of particles or that Hosseini et al. teaches away from such particles, as Hosseini et al. plainly teach them.

Applicant's arguments do not explain how prevention of agglomeration of copper pyrithione or the avoidance of particle agglomeration, prevents the production of particles or compositions thereof, but merely assert that Hosseini et al. therefore teaches away from the claimed invention. Applicant is respectfully reminded that the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness."). MPEP 2145.

Response to Arguments

The amended claims are drawn to a biocidal composition comprising composite particles, each of said composite particles containing a shell and a core, said core

Art Unit: 1639

consisting essentially of surface oxidized copper powder or a copper-containing compound selected from the group consisting of cuprous oxide, copper hydroxide, and combinations thereof, and said shell consisting essentially of a copper pyrithione formed by reaction of pyrithione acid or a water-soluble salt of pyrithione with a portion of said core copper or copper containing compound; and variations thereof.

Applicant argues that the previous Advisory Action, at page 7, states that "it is noted that the features upon which applicant relies (i.e., transchelation that is not complete) are not recited in the rejected claims." Responsive to this comment in the Advisory Action, claim 2 has been amended to require that the core of the composite particle consist essentially of surface oxidized copper powder or a compound selected from cuprous oxide, copper hydroxide, and combinations thereof. This claim limitation insures that transchelation of the shell with pyrithione from the shell is not complete. The shell has also been limited by amendment to require that the shell consists essentially of copper pyrithione.

Applicant's arguments, entered 4/9/2007, have been fully considered but they are not persuasive.

Applicant's arguments state that requiring that the core of the composite particle consist essentially of surface oxidized copper powder or a compound selected from cuprous oxide, copper hydroxide, and combinations thereof, but not copper containing salt(s), insures that transchelation of the shell with pyrithione from the shell is not complete. The examiner respectfully submits that this is an assertion of fact that is not supported by objective evidence. The arguments of counsel cannot take the place of

Art Unit: 1639

evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness."). MPEP 2145.

10. Applicant traverses the rejection of claims 2, 4, 6-11 and 40 under 35 U.S.C. 103(a) over Hosseini et al. and Gavin et al. US Pat. 5,342,437 (8/94).

This rejection is maintained for the reasons of record, as set forth in the previous Office action. The rejection is copied below for the convenience of the reader.

The substance of the 102/103 rejection of claims 2, 4, 6-10 and 40 over Hosseini et al. alone or in view of the specification is herein incorporated by reference in its entirety.

The Hosseini et al. particles differ from composition of claim 10 (in part) and claim 11 by failing to teach utilizing a "fatty acid coating" (e.g. stearic, linoleic, oleic etc.).

In this regard, Hosseini et al. Reference (e.g. see col. 1) teaches that pyrithione salts in the form of crystals (e.g. platelets) are incorporated into manufacturing articles including paints (e.g. coating compositions); with the *problem of "gellation"* during the production of copper pyrithione solution or dispersion occurring. The Hosseini solution to the gellation problem is to use a "surfactant coat" in its copper pyrithione particles.

However Gavin et al. teach that incorporating fatty acids (e.g. stearic, linoleic, oleic etc.) into its pyrithione compositions (e.g. zinc pyrithione/cuprous oxide) prior to incorporation into manufacturing articles (e.g. coating compositions such as paints) solves the gellation problem.

Accordingly, one of ordinary skill in the art at the time of applicant's invention would be motivated to apply a "fatty acid" particle coat, in addition or, *in lieu* of the "surfactant coat" in order to address the gellation problem.

Thus, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of applicant's invention to modify the Hosseini et al. Reference particle to apply a "fatty acid" coat in light of the Gavin reference teaching that to do so would address the gellation problem recognized by both the Hosseini and Gavin references.

Arguments directed to the above 102/103 rejection over the Hosseini reference were considered but deemed nonpersuasive for the following reasons. Initially, it is noted that the above rejection was modified in response to applicant's amendment.

Art Unit: 1639

Discussion

Arguments directed to the above 103 rejection over the Hosseini and Gavin references were considered but deemed nonpersuasive for the following reasons. Initially, it is noted that the above rejection was modified in response to applicant's amendment.

Applicant's arguments directed to the 102/103 rejection over the Hosseini reference and the Examiner's rebuttal in the Discussion of the 102/103 are herein incorporated by reference in its entirety.

Applicant argues that Gavin et al. does not suggest biocidal compositions comprising composite particles.

In response to applicant's arguments against the Gavin references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that the rejection based on the combination of the Hosseini and Gavin references is untenable because these references do not disclose or suggest the biocidal composition comprising particles that include a shell and a core.

This argument is not considered persuasive for the reasons already addressed in the Examiner's rebuttal of applicant's arguments directed to the 102/103 rejection over the Hosseini reference alone.

Applicant further argues that the Hosseini and Gavin references are not combinable since these references relate to disparate fields of technology since Gavin relates to zinc pyrithione containing paints which are subject to gellation, and Hosseini relates to copper pyrithione containing paints which aren't.

In response to applicant's argument that the Hosseini and Gavin references are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the Hosseini and Gavin references are BOTH "in the field of applicant's endeavor" AND/OR "reasonably pertinent to the particular problem with which the applicant was concerned". For example, both references teach the incorporation of pyrithione containing (e.g. zinc/copper) compositions into the same or similar products (e.g. paints) for purposes of addressing the same or similar problems (e.g. antifouling; biocidal) and possessing the same or similar benefits (e.g. prevent gellation; less toxic e.g. environmentally friendly). Accordingly, the Hosseini and Gavin reference are clearly analogous.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the above rejection provides ample motivation to combine the references e.g. one would be motivated to apply a "fatty acid" particle coat, in addition or, *in lieu* of the "surfactant coat" in order to address the gellation problem.

Accordingly, the above obviousness rejection is hereby maintained.

Applicant argues that the reference of Hosseini et al. does not disclose how to make or produce a biocidal composition comprising composite particles having a shell and a core. Applicant argues that Hosseini et al., at col. 2, lines 30-40, teach away from the claimed invention by alleging that Hosseini et al. describes reducing or eliminating the bonding of copper pyrithione molecules to one another. Applicant argues that Gavin et al. disclose incorporation of fatty acids into pyrithione compositions in order to avoid gelation, which applicant regards as another method of avoiding particle agglomeration. Applicant states that "[a]ccordingly, when viewed singly or in combination neither reference suggests composite particles of the instant claimed invention", (Reply at pp. 7-8, bridging paragraph).

Response to Arguments

Applicant's arguments, entered 11/14/2005, have been fully considered but they are not persuasive.

Art Unit: 1639

The examiner respectfully submits that the prior art reference of Hosseini et al. discloses biocidal compositions comprising composite particles, as explained in the above response to the traversal against the rejection under 35 USC 102/103.

Applicant's argument that the prior art references of Hosseini et al. and Gavin et al. teach away from the claimed invention is not deemed persuasive because Hosseini et al., at col. 2, lines 6-16, teach particles, as in the instant claims. Therefore, the examiner respectfully submits that it is not clear that the reduction of elimination of agglomeration of copper pyrithione molecules prevents the production of particles or that Hosseini et al. teaches away from such particles, as Hosseini et al. plainly teach them.

Applicant's arguments do not explain how prevention of agglomeration of copper pyrithione or the avoidance of particle agglomeration, prevents the production of particles or compositions thereof, but merely assert that Hosseini et al. therefore teaches away from the claimed invention. Applicant is respectfully reminded that the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness."). MPEP 2145.

Applicant argues that the reference of Hosseini et al. does not disclose how to make or produce a biocidal composition comprising composite particles having a shell and a core. Applicant argues that Hosseini et al., at col. 2, lines 30-40, teach away from the claimed invention by alleging that Hosseini et al. describes reducing or eliminating the bonding of copper pyrithione molecules to one another. Applicant argues that Gavin et al. does not suggest biocidal compositions of composite particles.

Response to Arguments

Applicant's arguments filed 9/8/2006 have been fully considered but they are not persuasive.

The examiner respectfully submits that the prior art reference of Hosseini et al. discloses biocidal compositions comprising composite particles. The Hosseini et al. reference discloses a composition in particle form, which comprises the same components (copper and pyrithione) which possesses the same presently claimed utility (i.e., biocidal). Thus, the particle complex of Hosseini et al., which possesses ingredients within the scope of the presently claimed invention, would inherently possess the same physical parameters (i.e., core and shell).

According to MPEP 2112.01, where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for basis for believing that the products of the applicant and the prior are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911, F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Therefore, because Hosseini et al., teach the identical or substantially identical chem structure, the properties applicant discloses and/or claims are necessarily present.

Applicant's argument that the prior art references of Hosseini et al. and Gavin et al. teach away from the claimed invention is not deemed persuasive because Hosseini et al., at col. 2, lines 6-16, teach particles, as in the instant claims. Therefore, the examiner respectfully submits that it is not clear that the reduction of elimination of agglomeration of copper pyrithione molecules prevents the production of particles or that Hosseini et al. teaches away from such particles, as Hosseini et al. plainly teach them.

Applicant's arguments do not explain how prevention of agglomeration of copper pyrithione or the avoidance of particle agglomeration, prevents the production of particles or compositions thereof, but merely assert that Hosseini et al. therefore teaches away from the claimed invention. Applicant is respectfully reminded that the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness."). MPEP 2145.

Response to Arguments

The amended claims are drawn to a biocidal composition comprising composite particles, each of said composite particles containing a shell and a core, said core consisting essentially of surface oxidized copper powder or a copper-containing compound selected from the group consisting of cuprous oxide, copper hydroxide, and combinations thereof, and said shell consisting essentially of a copper pyrithione formed by reaction of pyrithione acid or a water-soluble salt of pyrithione with a portion of said core copper or copper containing compound; and variations thereof.

Applicant argues that the previous Advisory Action, at page 7, states that "it is noted that the features upon which applicant relies (i.e., transchelation that is not complete) are not recited in the rejected claims." Responsive to this comment in the Advisory Action, claim 2 has been amended to require that the core of the composite particle consist essentially of surface oxidized copper powder or a compound selected from cuprous oxide, copper hydroxide, and combinations thereof. This claim limitation insures that transchelation of the shell with pyrithione from the shell is not complete. The shell has also been limited by amendment to require that the shell consists essentially of copper pyrithione.

Applicant's arguments, entered 4/9/2007, have been fully considered but they are not persuasive.

Applicant's arguments state that requiring that the core of the composite particle consist essentially of surface oxidized copper powder or a compound selected from cuprous oxide, copper hydroxide, and combinations thereof, but not copper containing

Art Unit: 1639

salt(s), insures that transchelation of the shell with pyrithione from the shell is not complete. The examiner respectfully submits that this is a assertion of fact that is not supported by objective evidence. The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness."). MPEP 2145.

11. Applicant traverses the rejection of claims 2, 4, 6-10, 35-37 and 40 under 35 U.S.C. 103(a) over Hosseini et al. '860 alone or in view of the specification (e.g. page 7, figures (e.g. fig. 2) and examples (e.g. example 1) to demonstrate inherency and Kappock et al. US Pat. 5,518,774 (5/96).

This rejection is maintained for the reasons of record, as set forth in the previous Office action. The rejection is copied below for the convenience of the reader.

The substance of the 102/103 rejection of claims 2, 4, 6-10 and 40 over Hosseini et al. alone or in view of the specification is herein incorporated by reference in its entirety.

The Hosseini et al. spherical particles differ from the presently claimed invention by failing to explicitly teach:

- a. selection of "copper oxide" as the metal ion containing compound for use with the pyrithione salt to form copper pyrithione (claim 35); and
- b. Copper oxide/copper pyrithione ratio of 5:1 to 15:1 or 10:1 with a "diameter of the coating material" about 1% of the "particle". (claims 36 and 37).

Kappock et al. teach that "transchelation" of a soluble pyrithione salt (such as sodium pyrithione) with a metal ion-containing compound to form insoluble pyrithione salts afford an excellent combination "in can" and "dry film" antimicrobial protection to an aqueous coating (e.g. paint) composition. (E.g. see col. 2, lines 30-40). Preferred metals include copper in the form of "copper oxide" or "copper sulfate" with

Art Unit: 1639

a copper oxide/copper pyrithione ratio of "between about 1:10 and about 10:1"; in which the amount of metal ion compound can vary (e.g. .001% or lower to 10% or greater, preferably between 0.005% and 1%) and include optimization so as to enable complete conversion of the pyrithione salt by transchelation to metal pyrithione during storage of the coating composition. See Kappock et al. Col. 2-3, especially col. 3, lines 12-32; patent claims 4-8.

Accordingly, the Kappock reference would provide motivation to one of ordinary skill in the art to modify the Hosseini copper pyrithione solid particle (e.g. for use in a coating composition such as paint) by substituting copper oxide for the Hosseini copper salt (e.g. copper sulfate: col. 2, lines 58-66) since:

- The references' teaching of functional equivalency of copper oxide and copper sulfate since both references teach copper sulfate but Kappock further utilized copper oxide; and
- In view of the benefits taught by the Kappock reference of utilizing copper oxide e.g. excellent combination "in can" and "dry film" antimicrobial protection to an aqueous coating (e.g. paint) composition.

Similarly, the Kappock reference provides one of ordinary skill in the art with copper oxide/copper pyrithione ratios (e.g. about 10:1) with additional motivation to optimize (e.g. enable complete conversion of the pyrithione salt to metal pyrithione) to achieve amounts within the scope of the presently claimed invention of 5:1 to 15:1 or 10:1 with a "diameter of the coating material" about 1% of the particle".

Thus it would have been *prima facie* obvious to one of ordinary skill in the art to modify the Hosseini et al. spherical particles by

- selecting "copper oxide" as the metal ion containing compound for use with the pyrithione salt to form copper pyrithione (claim 35); and
- utilize copper oxide/copper pyrithione ratio of 5:1 to 15:1 or 10:1 within the scope of the presently claimed invention (e.g. claims 35-37).

Regarding the claimed limitation "diameter of the coating material" about 1% of the "particle" (claims 36 and 37) it is noted that:

- Modification of the Hosseini et al. reference in view of the Kappock reference teaching would result in "spherical particles" which contain the same components in the same amounts as the presently claimed invention which are made in an analogous manner.

In this regard, it is noted that where the claimed and prior art products are identical or substantially identical in structure or composition (as in the present case) AND/OR is produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the appellant and the prior art are the same, the appellant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). For a chemical composition and its properties are inseparable. Therefore, since the prior art teaches the identical or substantially identical chemical structure, the properties appellant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990); and MPEP 2112.01. The PTO lacks the facilities for making comparisons between prior art and claimed compositions.

Alternatively, controlling reaction parameters in order to obtain "optimum spherical particles" (e.g. about 1% of the "particle"; would be within the skill of the art and obvious to one of ordinary skill in the art.

Discussion

Arguments directed to the above 103 rejection over the Hosseini and Kappock et al. references were considered but deemed nonpersuasive for the following reasons. Initially, it is noted that the above rejection was modified in response to applicant's amendment.

Applicant argues that Hosseini does not teach or suggest the biocidal composition of the present invention, and Kappock et al. teaches away from forming the biocidal compositions of the present invention, in favor of complete transchelation (vs. a portion as presently claimed).

Regarding applicant's rebuttal of the Hosseini reference, the Examiner's rebuttal of Applicant's arguments directed to the 102/103 rejection over the Hosseini reference in the Discussion of the 102/103 is herein incorporated by reference in its entirety.

Applicant's teaching away argument regarding the Kappock reference was considered but deemed nonpersuasive for the following reasons.

Art Unit: 1639

First, the Kappock reference teaches a concentration range (e.g. see col. 3, especially lines 15-28) which is within the scope of the presently claimed invention and thus MUST encompass "partial" transchelation. Additionally, a reference teaching of different degrees of its embodiments (e.g. more or less preferred embodiment) is not a teaching away as argued by applicant, especially where, as in the present case the Kappock reference teaches the beneficial employment of concentrations short of complete transchelation.

Accordingly, the above rejection is hereby maintained.

Applicant argues that the reference of Hosseini et al. does not disclose how to make or produce a biocidal composition comprising composite particles having a shell and a core. Applicant argues that Hosseini et al., at col. 2, lines 30-40, teach away from the claimed invention by alleging that Hosseini et al. describes reducing or eliminating the bonding of copper pyrithione molecules to one another. Applicant alleges that contrary to the present invention, Kappock et al. disclose "complete transchelation of zinc with a soluble pyrithione salt to produce an insoluble pyrithione salt. (See col. 3, lines 28-32)." Reply at p. 7, para 3. Applicant concludes that Hosseini et al. and Kappock et al. teach away from the biocidal composition of the present invention.

Response to Arguments

Applicant's arguments, entered 11/14/2005, have been fully considered but they are not persuasive.

The examiner respectfully submits that the prior art reference of Hosseini et al. discloses biocidal compositions comprising composite particles, and does not teach away from the claimed invention, as explained in the above response to the traversal against rejection under 35 USC 102/103.

Applicant's argument that the Hosseini et al. and Kappock et al. teach away from the claimed invention is not deemed persuasive. Applicant's arguments do not explain how "complete transchelation of zinc with a soluble pyrithione salt to produce an insoluble pyrithione salt", prevents the production of particles or compositions thereof, or teaches away from limitations or elements of the claimed invention. Applicant's arguments merely assert that the reference of Kappock et al., therefore teaches away from the claimed invention. Applicant is respectfully reminded that the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness."). MPEP 2145.

Applicant argues Kappock et al. teach complete transchelation of zinc with a soluble pyrithione salt to produce an insoluble pyrithione salt, contrary to the present invention.

Applicant's arguments filed 9/8/2006 have been fully considered but they are not persuasive.

The examiner respectfully submits that applicant's arguments are conclusory and not persuasive, in that there is no indication of how or in what manner the teachings of Kappock et al. are "contrary to the present invention", and how such a teaching would overcome the instant rejection. The instant specification does not appear to disclose incomplete transchelation.

Furthermore, it is respectfully noted that the claims do not recite limitations in regard to transchelation; therefore it is respectfully submitted that applicant argues limitations not found in the claims. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., transchelation that is not complete) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Response to Arguments

The amended claims are drawn to a biocidal composition comprising composite particles, each of said composite particles containing a shell and a core, said core consisting essentially of surface oxidized copper powder or a copper-containing compound selected from the group consisting of cuprous oxide, copper hydroxide, and combinations thereof, and said shell consisting essentially of a copper pyrithione formed by reaction of pyrithione acid or a water-soluble salt of pyrithione with a portion of said core copper or copper containing compound; and variations thereof.

Applicant argues that the previous Advisory Action, at page 7, states that "it is noted that the features upon which applicant relies (i.e., transchelation that is not complete) are not recited in the rejected claims." Responsive to this comment in the Advisory Action, claim 2 has been amended to require that the core of the composite particle consist essentially of surface oxidized copper powder or a compound selected from cuprous oxide, copper hydroxide, and combinations thereof. This claim limitation insures that transchelation of the shell with pyrithione from the shell is not complete. The shell has also been limited by amendment to require that the shell consists essentially of copper pyrithione.

Applicant's arguments, entered 4/9/2007, have been fully considered but they are not persuasive.

Applicant's arguments state that requiring that the core of the composite particle consist essentially of surface oxidized copper powder or a compound selected from cuprous oxide, copper hydroxide, and combinations thereof, but not copper containing

Art Unit: 1639

salt(s), insures that transchelation of the shell with pyrithione from the shell is not complete. The examiner respectfully submits that this is a assertion of fact that is not supported by objective evidence. The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness."). MPEP 2145.

Conclusion

12. Claims 2, 4, 6-11, 35, 36, and 40 are rejected.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Shibuya, whose telephone number is (571) 272-0806. The examiner can normally be reached on M-F, 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. J. Douglas Schultz can be reached on (571) 272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1639

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Mark L. Shibuya', with a stylized flourish at the end.

Mark L. Shibuya, Ph.D.
Primary Examiner
Art Unit 1639